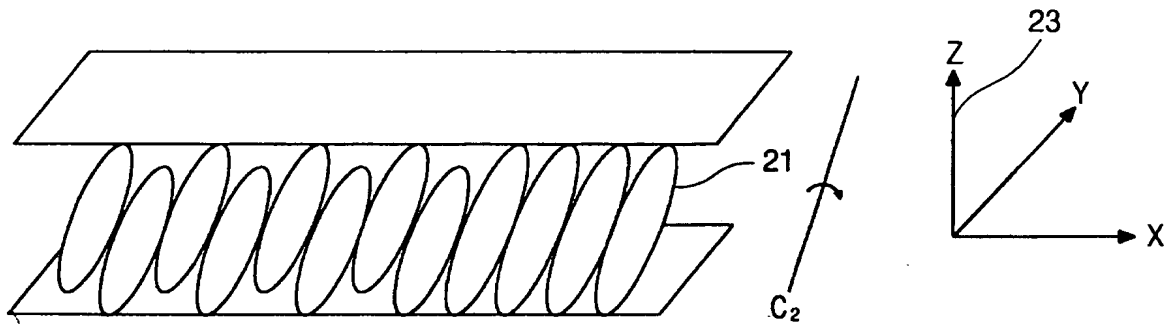


(related art)
Figure 1



(related art)
Figure 2

1. *Chlorophyll a* (Chl *a*) is the primary photosynthetic pigment in most plants and algae. It is a green pigment that absorbs light energy in the blue and red regions of the visible spectrum. Chl *a* is essential for the light-dependent reactions of photosynthesis, where it converts light energy into chemical energy.

2. *Chlorophyll b* (Chl *b*) is an accessory pigment found in green plants and algae. It is a yellow-green pigment that absorbs light energy in the blue and orange-red regions of the visible spectrum. Chl *b* transfers the absorbed energy to Chl *a* for use in photosynthesis.

3. *Carotenoids* are a group of pigments that include carotenes and xanthophylls. They are responsible for the yellow, orange, and red colors seen in autumn foliage. Carotenoids absorb light energy in the blue and green regions of the visible spectrum and transfer the energy to Chl *a*. They also play a role in protecting the photosynthetic apparatus from damage by excess light energy.

4. *Xanthophylls* are a subclass of carotenoids that are involved in the xanthophyll cycle. This cycle is a protective mechanism that helps plants dissipate excess light energy as heat, preventing damage to the photosynthetic apparatus. Xanthophylls are typically yellow or orange in color.

5. *Anthocyanins* are water-soluble pigments that are responsible for the red, purple, and blue colors in many plants. They are not directly involved in photosynthesis but can play a role in protecting plants from environmental stressors such as UV radiation and herbivory.

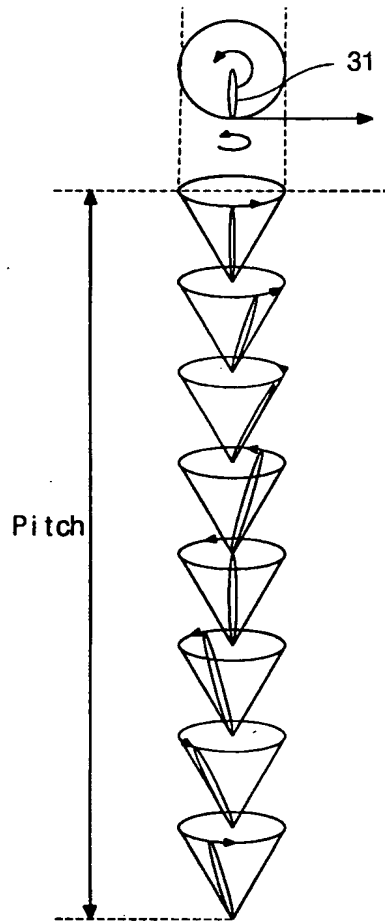
6. *Phycobilins* are a group of pigments found in cyanobacteria and red algae. They are responsible for the blue, green, and red colors in these organisms. Phycobilins absorb light energy in the blue and green regions of the visible spectrum and transfer the energy to Chl *a*.

7. *Phenolic compounds* are a large group of organic compounds that are often involved in plant defense and signaling. They can be responsible for various colors in plants, including brown, black, and grey. Phenolic compounds can also play a role in protecting plants from environmental stressors.

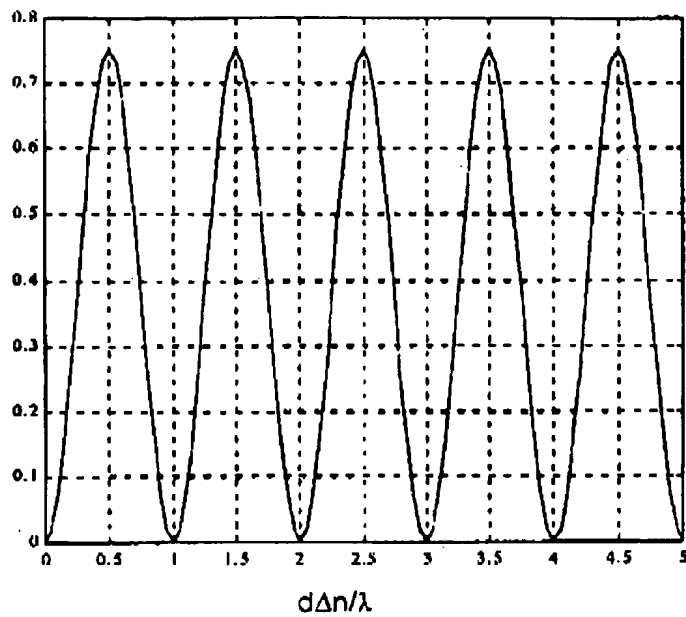
8. *Flavonoids* are a subclass of phenolic compounds that are responsible for the yellow, orange, and red colors in many plants. They are involved in various plant processes, including defense, signaling, and pigmentation.

9. *Lignans* are a subclass of phenolic compounds that are often involved in plant defense and signaling. They can be responsible for various colors in plants, including brown, black, and grey. Lignans can also play a role in protecting plants from environmental stressors.

10. *Terpenoids* are a large group of organic compounds that are often involved in plant defense and signaling. They can be responsible for various colors in plants, including yellow, orange, and red. Terpenoids can also play a role in protecting plants from environmental stressors.



(related art)
Figure 3



(related art)
Figure 4

008227" 011611.60

A diagram showing a vertical stack of ten identical optical elements. Each element consists of a rectangular plate with a concave lens on its top surface and a convex lens on its bottom surface. A dashed vertical line passes through the center of each element. A ray of light enters from the top, passes through the lenses, and reflects off the bottom surface of each element. A dimension line on the left indicates the vertical distance between the top and bottom of the stack is $\frac{1}{2}$ Pitch. A label '41' points to the right side of the stack.

DC:68191.1

41

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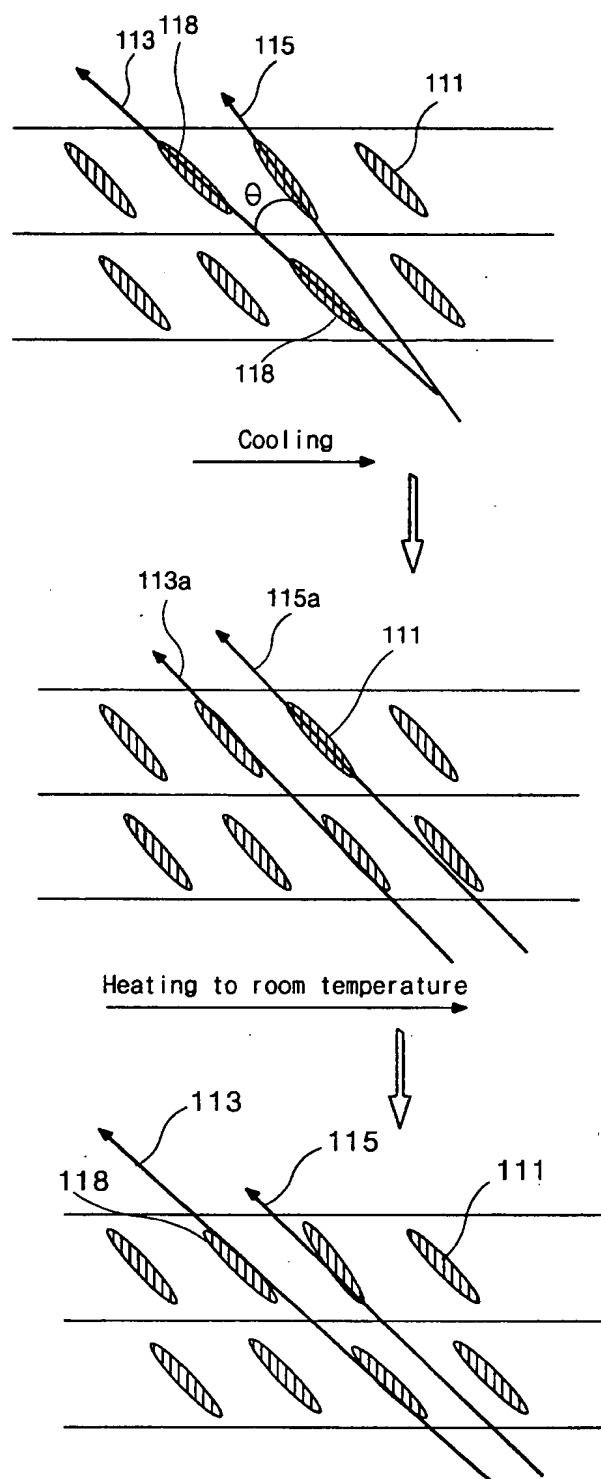


Figure 6